UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

80-20

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REPLY TO: 3430 Evaluation

October 7, 1980

SUBJECT: Wildwood Picnic Area, Tujunga RD

TO: Forest Supervisor, Angeles NF

Bob Haggard, Resource Officer on the Tujunga RD, reported in late August, 1980 that elm trees in the Wildwood Picnic Area had been defoliated by the elm leaf beetle. Ben Beall, District Ranger, later submitted a pest detection report, photographs of the defoliated area and increment cores from the defoliated trees which provided enough information to evaluate the situation.

The Wildwood Picnic area is located at T2N, R13N, S4 in Big Tujunga Canyon. The picnic area is about 1800-1900 ft. elevation and the canyon walls support typical foothills brush with few species exhibiting tree-like form. Annual precipitation for the immediate area isn't available, but the average of the normal precipitation for the five closest stations is 24.6 inches per year. The picnic area was previously privately owned and the current vegetation consists of elms, sycamores, non-native hardwoods and pines. One of the long-range goals of the District is to plant other tree species to replace the elm trees; however, it may be 10-20 years before the elms can be removed.

Many of the elm trees in the picnic area were completely defoliated in 1979 and 1980. The previous defoliation history of the area is unknown.

All species of elms grown in California may be attacked by the elm leaf beetle, Pyrrhalta luteola. Most of the defoliation is caused by the larvae feeding on the undersides of the leaf, although the adults also feed on the leaves. The adults are about 1/4 inch long and yellowish or olive-green with a black stripe on the outer edge of each wing cover. The adults overwinter in protected places until spring when they fly to nearby elm trees. They mate and lay groups of orange-yellow spindle-shaped eggs on the undersides of the leaves. After the eggs hatch, the larvae feed on the under side of leaves for about 3 weeks. When the larvae are mature they are about 1/2 inch long and dull yellow with black markings on the back. The mature larvae move to the lower part of the tree trunk or ground to pupate. After a period of 10 days to two weeks, the adults emerge to begin the cycle again.

The number of generations per year depends on the length of the plant growing season. In California, there can be from 2 to 5 generations per year. In most areas, the first generation of

larvae in the spring causes the greatest damage. Repeated complete defoliations can seriously weaken the trees.

One of the District's objectives for the immediate future is to maintain the elm trees until there are suitable replacements. As long as precipitation remains near normal, most of the elm trees are likely to survive, regardless of the elm leaf beetle situation. Growth of the elm trees in the picnic area seems to be strongly controlled by precipitation (see enclosed graph). Although the 1980 growth was apparently reduced by elm leaf beetle defoliation, it was still greater than growth during previous years of low precipitation.

Most hardwoods will tolerate 3 or more years of defoliation before becoming susceptible to bark beetle or borer attack. Populations of defoliating insects such as the elm leaf beetle rarely persist at high levels for more than a few years before parasites or adverse weather reduces their numbers. Introduced parasites of the elm leaf beetle have become established in southern California and it is possible they could reduce the defoliation in the picnic area to tolerable levels before the trees are seriously weakened. If a foliar insecticide spray is applied to the trees, it is likely to reduce the number of parasites below the point at which any control can be expected of them. As long as elm trees remain in the campground, elm leaf beetle can also be expected to be present with annual defoliation ranging from barely detectable to total.

A second objective of the District is to provide shade in the picnic area. Based on the known defoliation history of the area, the level of defoliation seen in 1980 and the healthy appearing larvae in 1980, it is most likely there will be visible defoliation in 1981.

## Management alternatives For Providing Shade

1. Do nothing. Most likely some of the elm trees will sustain some defoliation in 1981. At some point in the future, the level of defoliation will be reduced due to a reduction in the elm leaf beetle population by natural mortality agents. Few elm trees would be expected to die, barring other unforseen occurrences.

2. Install manufactured sun shades. Wood, plastic or metal shades would provide instant and dependable shade. Over a 20-year span, their cost may not be much greater than an elm maintenance program.

3. Plant or transplant other trees. Maintaining as wide a variety of native California trees as practical would be

a good long-term strategy to reduce the impact of pests in the area. Unfortunately, the expense and physical limitations would make it nearly impossible to provide shade by 1981.

4. Apply an insecticide to the foliage of elm trees. A foliar application of an insecticide in the spring, just after the eggs hatch, will usually reduce the first generation enough to prevent the majority of the defoliation. In some cases, a second application later in the year may be necessary if there are many survivors or migration of beetles from nearby untreated areas. A foliar insecticide treatment will probably eliminate most of the elm leaf beetle parasites in the area. A pesticide use proposal would be required for the treatment. The following insecticides are registered for elm leaf beetle suppression:

| Compound and Manufacturers | Toxicity Category | Notes |
|---|---|---|
| Carbaryl | | |
| Union Carbide<br>Sevimol 4<br>50W<br>80% Sprayable | III (Slightly Toxic) | California Restricted Material (Permit Req.) |
| Security<br>50% WP | | |
| Stauffer<br>Sevin 4 | | |
| Naled | I (Highly Toxic) | |
| Ortho<br>Dibrom 8 | | |
| Bio-Lab<br>Bio-Sec 8X | | |
| Methoxychlor | III (Slightly Toxic) | |
| FMC<br>2EC | | |
| B.G. Pratt<br>50 W | | |
| Toxaphene | II (Moderately Toxic) | California Restricted Material |
| Security<br>Tox-Sol-6 | | |

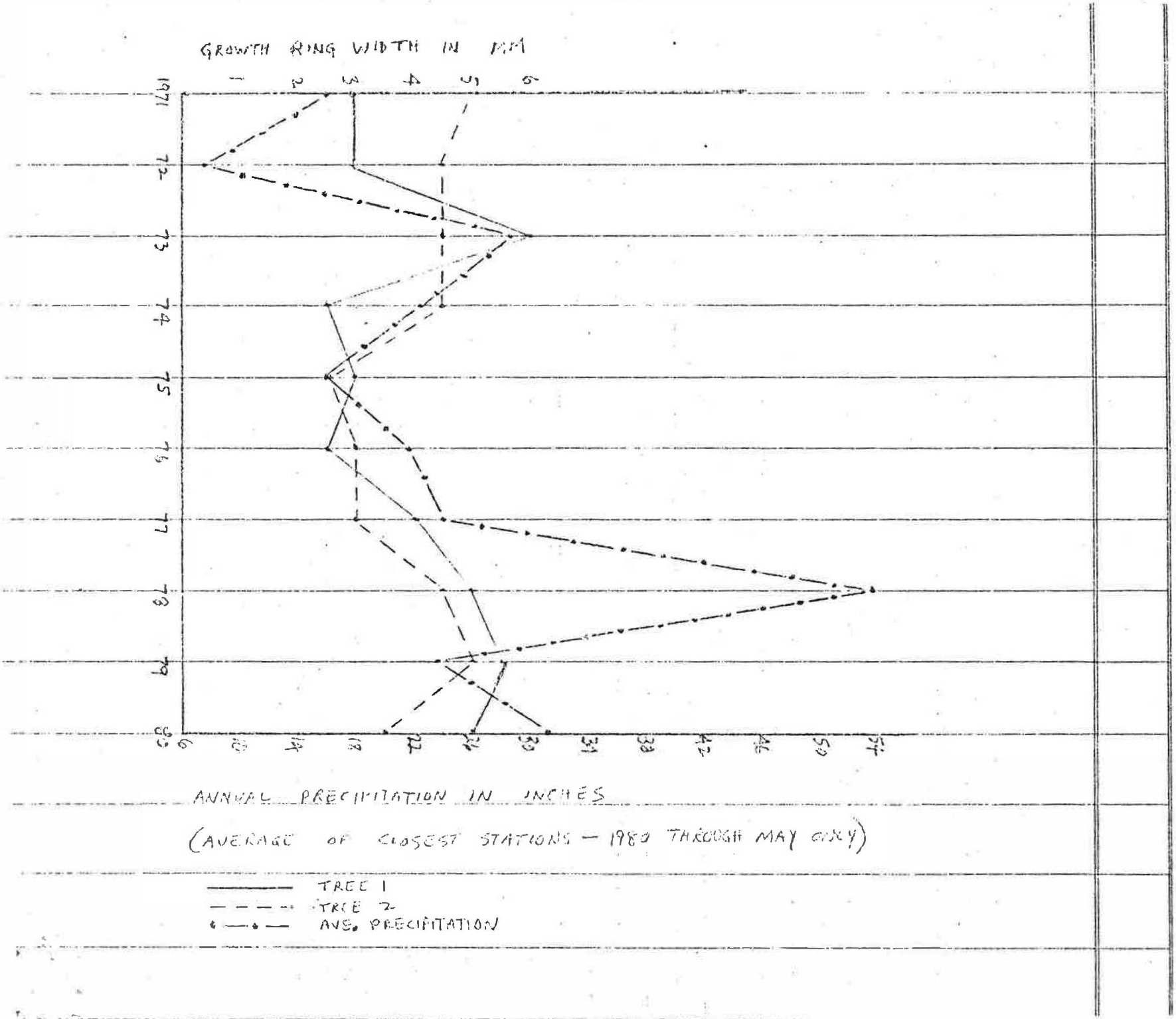
5. Use a systemic insecticide to suppress the elm leaf beetle. The use of a systemic insecticide would result in approximately the same degree of control as a foliar application. It would have the advantages of less environmental contamination, particularly with injected (Oxydemeton-methyl) or implanted (Acephate) insecticides and the systemics would also allow any elm leaf beetle parasites present in the area to build up. The systemics have the disadvantages of being more labor intensive and usually more expensive. A pesticide use proposal is required for the treatment. Systemic insecticides registered for the elm leaf beetle include:

| Compound and Manufacturer | Toxicity Catergory | Notes |
|---|---|---|
| Disulfoton<br>Chemagro<br>Di-Syston | I (Highly Toxic) | California Restricted Material Granular Soil application |
| Acephate<br>Creative Sales Inc<br>Acecap | II (Moderately Toxic) | Plastic bole implant |
| Oxydemeton-Methyl<br>J.J. Mauget Co.,<br>Inject-a-cide | II (Moderately Toxic) | Bole injection |

If any of the points raised in this evaluation requires clarification, please contact Dave Schultz at (415) 556-4322, or one of the other entomologists on my staff.

WILFRED L. FREEMAN, JR., Director
Forest Pest Management

Enclosure


GROWTH RING WIDTH IN MM
1 2 3 4 5 6
1971
72
73
74
75
76
77
78
79
80
6 10 14 18 22 26 30 34 38 42 46 50 54
ANNUAL PRECIPITATION IN INCHES
(AVERAGE OF CLOSEST STATIONS — 1980 THROUGH MAY ONLY)
TREE 1
TREE 2
AVG. PRECIPITATION